



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

646.3316

Job Sheet 170461



Part No: 646.3316

Job Qty: 12 ea

Part Name: Blade



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/16/18

Job Tracking No:

Created By: Linda Lacelle

Due Date: 1/24/18

Type: SOLD

Description:

Note: DWG REV A SHEET 10 IPP REV:A NEW ISSUE 12/11/07 JFS VERIFY BY: JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	12 Ea		1/24/18	0.00	0.00	Start Up Machining-1		
100	Bandsaw	12 pcs		1/24/18	0.00	0.11	Bandsaw1		
110	CNC Vertical Machining	12 pcs		1/24/18	0.00	13.04	HAAS1-1		
120	QC	12 pcs		1/24/18	0.00	0.00	QC2 Machining-1		
130	QC	12 pcs		1/24/18	0.00	0.00	QC8 Machining-1		
140	Outsource	12 pcs		1/24/18			MEI001-VC	39/181	
150	Packaging	12 pcs		1/24/18	0.00	0.00	Packaging2		
155	QC	12 pcs		1/24/18	0.00	0.00	QC5		
160	SprayPaint	12 pcs		1/24/18	0.00	0.40	Spray Paint		
170	QC	12 pcs		1/24/18	0.00	0.00	QC14		
180	Packaging	12 pcs		1/24/18	0.00	0.00	Packaging3		
190	QC21-SA	12 Ea		1/24/18	0.00	0.00	QC21		

Part Op 100 - Cut Blank at 6.000"

Descriptions: 110 - 1-Machine per folio FB147

140 - HEAT TREAT AS PER DWG, SEE NOTE #3

160 - PRIME AS PER DWG, SEE NOTE #4

180 - ***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	MSTEEL-A2-B0.500X1.250	6	79	0	0

MSTEEL-A2-B0.500X1.250
SO24352

DQA: _____ Date: _____

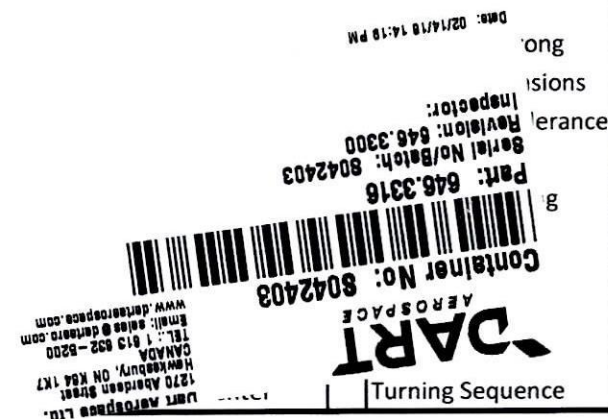
WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machine ☐ Cross tube ☐ Thermal ☐		Engineering ☐ Quality ☐ Other ☐																																																									
Date : _____		Step #: _____		Q		1042) Approval																																																									
Description Work Order Deviation						Initialed By _____ Supervisor Verification _____ Coordinator _____																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4">Root Cause</th> </tr> </thead> <tbody> <tr> <td style="width: 15%;">Environment</td> <td style="width: 15%;">☐</td> <td style="width: 15%;">No Re-verification</td> <td style="width: 15%;">☐</td> </tr> <tr> <td>Design</td> <td>☐</td> <td>Operator</td> <td>☐</td> </tr> <tr> <td>Doc/Data</td> <td>☐</td> <td>Offset/Setup</td> <td>☐</td> </tr> <tr> <td>Equip/Tooling</td> <td>☐</td> <td>Supplier</td> <td>☐</td> </tr> <tr> <td>Handling/Pre</td> <td>☐</td> <td>Training</td> <td>☐</td> </tr> <tr> <td>Material</td> <td>☐</td> <td>Use for Testing</td> <td>☐</td> </tr> <tr> <td>Internal Transport</td> <td>☐</td> <td>Poor Information</td> <td>☐</td> </tr> <tr> <td>Tribal Knowledge</td> <td>☐</td> <td>Rushing</td> <td>☐</td> </tr> <tr> <td>LOA</td> <td>☐</td> <td>Product Improvement</td> <td>☐</td> </tr> <tr> <td>Substation</td> <td>☐</td> <td>Process Improvement</td> <td>☐</td> </tr> <tr> <td>Past Expiry Date</td> <td>☐</td> <td>Manufacturing Process</td> <td>☐</td> </tr> <tr> <td>Misidentified</td> <td>☐</td> <td>Past Due</td> <td>☐</td> </tr> <tr> <td colspan="4" style="text-align: center;">OTHER : _____</td> </tr> </tbody> </table>								Root Cause				Environment	☐	No Re-verification	☐	Design	☐	Operator	☐	Doc/Data	☐	Offset/Setup	☐	Equip/Tooling	☐	Supplier	☐	Handling/Pre	☐	Training	☐	Material	☐	Use for Testing	☐	Internal Transport	☐	Poor Information	☐	Tribal Knowledge	☐	Rushing	☐	LOA	☐	Product Improvement	☐	Substation	☐	Process Improvement	☐	Past Expiry Date	☐	Manufacturing Process	☐	Misidentified	☐	Past Due	☐	OTHER : _____			
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Part Specifications					
Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Blade	5.870inches $\pm$ 0.005	5.875 5.865		
2	Blade	4.750inches $\pm$ 0.005	4.755 4.745		
3	Blade	0.940inches $\pm$ 0.005	0.945 0.935		
4	Blade	0.524inches $\pm$ 0.005	0.529 0.519		
5	Blade	0.240inches $\pm$ 0.002	0.242 0.238		
6	Blade	0.694inches $\pm$ 0.002	0.696 0.692		
7	Blade	1.250inches $\pm$ 0.002	1.252 1.248		
8	Blade	0.177inches + 0.005 - 0.001	0.182 0.176	Diameter	
9	Blade	40.000Degrees $\pm$ 0.500	40.500 39.500	Angle	
10	Blade	0.375inches $\pm$ 0.005	0.380 0.370		
11	Blade	0.325inches $\pm$ 0.005	0.330 0.320		
12	Blade	30.000Degrees $\pm$ 0.500	30.500 29.500	Angle	

Plex 1/16/18 1:39 PM dart.lacelle.linda

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



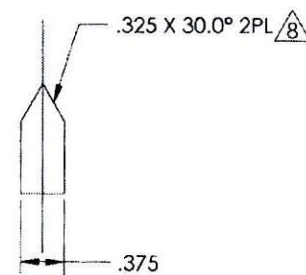
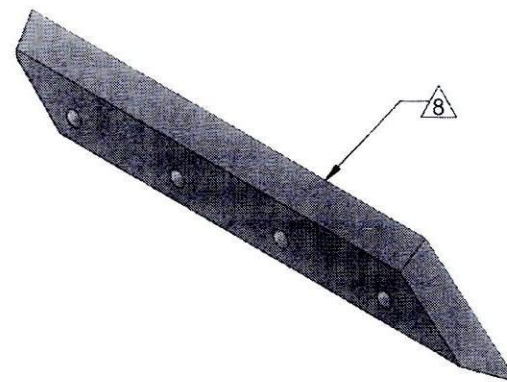
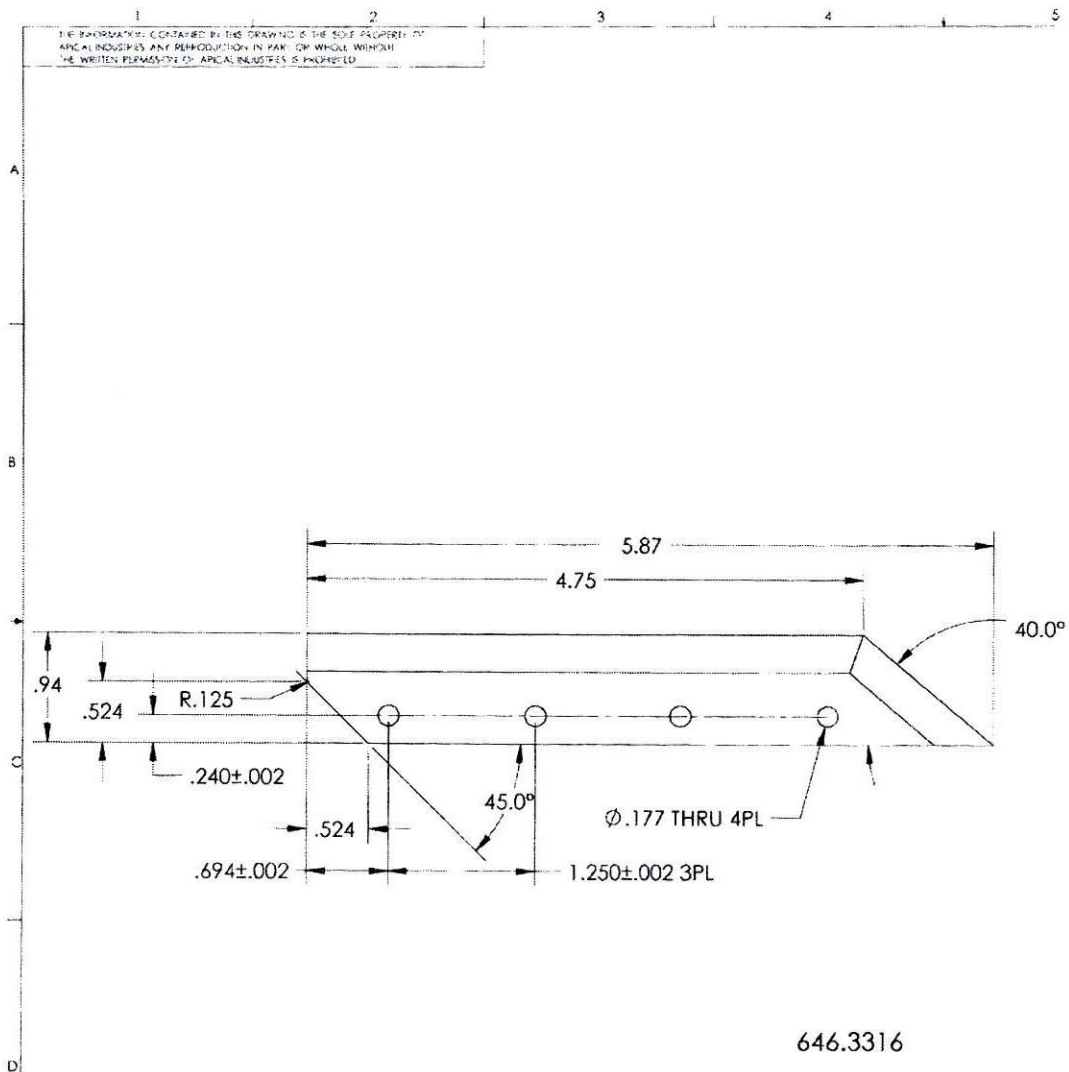
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
					QC / QA Coordinator Approval				

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER :			
Misidentified ☐		Past Due ☐					

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646.3316

PROJECT DATE: _____ DRAWN BY: _____ CHECKED BY: _____ IN CHARGE: _____ DRAWING APPROVAL: _____ DATE: _____ CONSTRUCTION: _____		3030 ENTERPRISE CT. SUITE A VISTA, CA. 92081 (760) 724-5300 DART AEROSPACE APICAL INDUSTRIES, INC. 1800 GARDEN AVENUE	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES SURFACES ARE UNFINISHED DIMENSIONS ARE TO CENTER UNLESS OTHERWISE NOTED		SET: _____ DATE: _____ BY: _____ SCALE: _____	DWG. NO.: 646.3300 REV: _____ SHEET: _____ OF _____



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039181**

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO039181
PO Date: 3/2/18
Due Date: 3/20/18
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Lacelle, Linda
Phone: llacelle@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pynt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	171547	D2741	Replacement Blade Issue P/O: HARDEN MATERIAL: ULTIMATE TENSILE STRENGTH = 152 KSI MINIMUM YIELD TENSILE STENGHT = 141 KSI (34-40 HRC) SAND BLAST PART AFTER HEAT TREAT \ NOTE: DO NOT OIL AFTER SANDBLAST NOTE: DETAIL C OF C REQUIRED	Firmed	3/27/18	38 pcs	0 pcs	38 pcs	\$18.0152632/pcs	\$684.58

Line Item Note part made from 4130 bar

2		646.3013	Blade ISSUE P/O: FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS As Per Dwg 646.3000 PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	3/20/18	12 pcs	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
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Items										
Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3		646.3014	Blade FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS As Per Dwg 646.3000 PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	3/20/18	12 pcs ✓	0 pcs 11x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
4	170451	646.3015	Blade FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS As per dwg 646.3000 PART ARE MADE FROM AISI A2 TOOL STEEL DETAIL OF C OF C REQUIRED	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
5	170459	646.3314	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
6	170460	646.3315	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
7		646.3316	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57

DAS
38
9-89

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
325893	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
PO039181	N/A	A2		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
HARDNESS	58 - 62 HRC	8	58 - 61 HRC	

METCOR INC.

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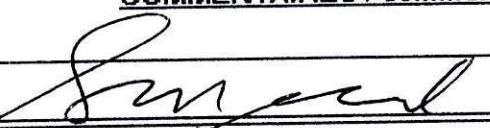
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
138	45	646.3013 (12) 646.3013 DWG 646.3000 (12) 646.3014 DWG 646.3000 (12) 646.3015 JOB 170451 DWG 646.3000 (12) 646.3314 JOB 170459 DWG 646.3300 (12) 646.3315 JOB 170460 DWG 646.3300 (12) 646.3316 DWG 646.3300 (44) D5504-1 171646 (20) D5557-1 171467 2= 1BC + 1 VALISE

APPROUVÉ

16/3/18

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2018-03-12